

REMARKS/ARGUMENTS

The Official Action rejects Claims 1-40 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The Examiner continues to reject Claims 1, 5-9, 15, and 19-23 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,571,171 to Pauly in view of U.S. Patent No. 6,163,744 to Onken et al. The Official Action rejects Claims 10-13 and 24-27 under 35 U.S.C. § 103(a) as being unpatentable over the Pauly '171 patent in view of the Onken '744 patent and further in view of U.S. Patent No. 5,657,231 to Nobe et al. The Official Action also rejects Claims 14 and 28 under 35 U.S.C. § 103(a) as being unpatentable over the Pauly '171 patent in view of the Onken '744 patent and further in view of U.S. Patent No. 6,216,109 to Zweben et al. Finally, the Official Action rejects Claims 29, 32, 34-36, and 38 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,943,919 to Aslin in view of the Onken '744 patent.

As explained more fully below, independent Claims 1, 15, 29, and 35 have been amended to overcome the § 101 rejection and are patentably distinguishable from the cited references, taken either individually or in combination. Claim 41 has been cancelled. In light of the amendments and subsequent remarks, Applicants respectfully request reconsideration and allowance of the present application.

A. The Rejection of Claims 1-40 under 35 U.S.C. § 101 is Overcome

The Official Action rejects Claims 1-40 under 35 U.S.C. § 101, as being directed to non-statutory subject matter. In light of the rejection, Applicants have amended independent Claims 1, 15, 29, and 35 to recite that a respective method or system is to be used in a computer system and that at least one of the steps or means recited in each claim is performed by a processor. Therefore, Applicants submit that Claims 1-40 define patentable subject matter. Therefore, the rejection under 35 U.S.C. §101 of Claims 1-40 has been overcome.

B. The Rejection of Independent Claims 1 and 15 under 35 U.S.C. § 103(a) is Overcome

The Official Action rejects independent Claims 1 and 15 over the combination of the Pauly '171, Onken '744, and Tang '500 patents. The Pauly '171 patent discloses an apparatus and method for inserting a waypoint into a preexisting flight plan, which includes selecting a waypoint on a Flight Management System (FMS) graphical display of a portion of the flight plan and automatically generating a proposed changed flight plan. The Onken '744 patent discloses a method for automatically correcting the flight of an aircraft, such as in a flight management system (FMS) used by a pilot during the flight, following a change in the flight-relevant parameters.

The newly cited Tang '500 patent discloses a system and method for generating a minimum-cost airline flight plan from a point of origin through a set of fix points to a destination point. A set of navigation airways, including a set of fix points and vectors for high altitude flight, and a set of predetermined altitudes are stored in a database. The database also includes station data, station approach and departure procedures, predefined flight restricted areas (e.g., areas of hazardous weather), aircraft performance data, operational data (e.g., start date and time, payload, scheduled flight time, and origin and destination), and weather data. The minimum cost path is determined with an acyclic network constructed with a feasible search region that is determined within the boundaries of a two-dimensional rectangular macro region. The minimum-cost flight plan is optimized simultaneously over location, altitude, and speed.

In contrast to the disclosures of the Pauly '171, Onken '744, and Tang '500 patents, independent Claims 1 and 15 of the present application recite determining a proposed pre-flight **assignment** for the aircraft. The Examiner acknowledges in the Official Action that “[n]either Pauly nor Onken teaches the determination of a proposed pre-flight assignment,” but relies on a portion of the Tang '500 patent that defines flight planning as the “primary activity that determines the airline operations and all other operational issues, such as irregular operations, flight cancellations, maintenance routing and gate planning, and ties in as peripheral activities to the flight planning process.” See Col. 1, lines 58-63.

The Tang '500 patent shares similar shortcomings of the Pauly '171 and Onken '744 patents and is fundamentally different than independent Claims 1 and 15 of the present application. Namely, the Tang '500 patent also does not disclose determining a pre-flight assignment for an aircraft or generating a flight assignment plan for the aircraft using the proposed flight assignment that meets a decision criteria describing requirements for aircraft routing. Applicants submit that there is distinct difference between flight assignment and flight planning. Flight or tail assignment, as known to those of ordinary skill in the art, is concerned with determining which individual aircraft should be assigned to a particular flight based on operational and maintenance constraints of the aircraft and is focused on the ability to operate the schedule. Claims 1 and 15 recite that the pre-flight assignment is based on an aircraft routing proposal and complies with information describing the possible flight of the aircraft (e.g., flight, aircraft, or maintenance information). The aircraft routing proposal is typically a flight network that represents an airline schedule for a particular aircraft. Furthermore, the specification of the present application states that the proposed flight assignment represents the assignment of aircraft to flights and may include a sequence of flights and/or ground arcs (i.e., routes) satisfying operational and maintenance constraints. See page 18, ¶ 38. Accordingly, it is apparent that several variables are utilized to determine a proposed pre-flight assignment for the aircraft.

In contrast, flight planning, is directed to the details of a particular flight or route, without consideration for the particular aircraft or tail that will be assigned to the route. As described in the Tang '500 patent, "[a] flight plan is a document that lays out the ground route between take-off and landing, the altitude levels to be flown and the speed schedule of the aircraft throughout the flight." See Col. 1, lines 18-21. Thus, flight planning relates to the particulars of the flight itself and is used as one of many variables in the flight assignment process. The Tang '500 patent discloses flight planning and, thus, is distinguishable from independent Claims 1 and 15 of the present application for at least this reason.

As a result, Applicants submit that it is clear that the Pauly '171, Onken '744, and Tang '500 patents do not teach or suggest determining a flight assignment for an aircraft as recited in independent Claims 1 and 15 of the present application. Moreover, even if the Pauly '171,

Onken '744, and Tang '500 patents were combined with any one of the remaining references, the combination would not teach or suggest any type of flight assignment of an aircraft as recited by independent Claims 1 and 15. Therefore, Applicants submit that the rejection of Claims 1 and 15, and all claims that depend therefrom, under 35 U.S.C. § 103(a) is overcome.

C. The Rejection of Independent Claims 29 and 35 under 35 U.S.C. § 103(a) is Overcome

Independent Claims 29 and 35 are rejected under 35 U.S.C. § 103(a) over the combination of the Aslin '919 and Onkin '744 patents. Independent Claims 29 and 35 recite a method and system, respectively, for generating an aircraft routing proposal. Claims 29 and 35 include receiving information describing a possible flight of an aircraft, wherein the information includes maintenance and operational constraints that are tail specific, and generating a flight network for the aircraft from the received information, wherein the flight network represents a schedule for the aircraft. Thus, the flight network may show the possible flights for an aircraft that satisfy maintenance and operational constraints (*See e.g.*, ¶ 29 and Figure 3 of the present application).

In contrast, the Aslin '919 patent describes collecting and processing fault data from computerized control systems indicative of situations that require crew awareness, *i.e.*, flight deck annunciation, or that affect dispatchability and mapping any analog discrete signals to binary values. Thus, the Aslin '919 patent does not teach generating a flight network from information that describes a possible flight of an aircraft, where the flight network represents an airline schedule for a particular aircraft (*i.e.*, aircraft 1 to fly from DFW to CLT to CHI and aircraft 2 to fly from DFW to LAW to DFW). The Aslin '919 patent is primarily concerned with aiding flight crew and maintenance personnel in maintenance procedures by isolating faults to determine particular components that need repaired or replaced. As such, the Aslin '919 patent discloses the collection of fault data for maintenance purposes but does not generate a flight network, as defined in the present application.

In addition, the Onken '744 patent automatically creates revised flight plans to supply to the FMS, but the Onken '744 patent does not disclose generating the revised flight plan by

generating a flight network from information that describes a possible flight of an aircraft, where the flight network represents a flight schedule for the aircraft. Although the Onken '744 patent may create the revised flight plan by using a search-and-selection procedure to search for the most favorable flight path from a starting point to a destination point by expanding the flight path by new path elements that are selected according to certain criteria, such as allowing segments of standard routes (not only direct connections between two path points) and/or planning the route to a fixed final approach point (not directly to the runway of the target airport), the Onken '744 patent does not generate the revised flight plan by generating a flight network that represents a schedule for the aircraft that takes into account tail-specific information, such as maintenance and operational constraints for a particular aircraft, as recited by independent Claims 29 and 35.

Even assuming the Tang '500 patent discloses generating a flight network, Tang does not disclose that the flight network takes into consideration maintenance constraints (e.g., number of cycles or flying time between maintenance checks) that are tail specific (i.e., for a specific aircraft). The Tang '500 patent considers various data inputs including: navigation airways, weather data, performance data input, and operational constraints. However, the Tang '500 patent does not teach or suggest receiving information describing a possible flight of a particular aircraft that includes maintenance constraints that are tail specific.

The remaining references also do not teach or suggest the method or system of independent Claims 29 and 35. Therefore, Applicants submit that none of the cited references, taken either individually or in combination, teach or suggest the method or system of Claims 29 and 35, respectively. Thus, the rejection of independent Claims 29 and 35, and those claims that depend therefrom, under 35 U.S.C. § 103(a) is overcome.

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CONCLUSION

In view of the amendments and remarks presented above, it is respectfully submitted that all of the present claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

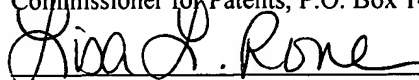


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